FILE C

Mathematics

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Item Information and Scoring Guide Reference Sheet

The following pages are designed to assist you in understanding how Maine Educational Assessment (MEA) items are scored. These pages contain the text for each released item accompanied by the following information.

Multiple-Choice Items

The boxes containing the multiple-choice items also contain the percent of students statewide who chose each answer option. The correct option is asterisked(*).

- **MC#:** the multiple-choice item position in the Class Analysis Report
  One point may be earned for a multiple-choice item.
- **Key:** the letter of the correct answer for the multiple-choice item
- **Calculator:** indication of whether a calculator was an allowed tool in the session during which the item was administered
- **Cluster:** the cluster that the item measured
- **Content Standard:** the content standard that the item measured
- **Grade Level Expectation (GLE):** the grade level expectation that the item measured

Short-Answer Items

- **SA#:** the short-answer item position in the Class Analysis Report
  Up to two points may be earned for a short-answer item.
- **Calculator:** indication of whether a calculator was an allowed tool in the session during which the item was administered
- **Cluster:** the cluster that the item measured
- **Content Standard:** the content standard that the item measured
- **Grade Level Expectation (GLE):** the grade level expectation that the item measured
- **Short-Answer Scoring Guide:** the description of each score point used to determine the score, including the percent of students statewide who received each score and the statewide average student score
- **Training Notes:** in-depth descriptions or particular information used to determine the score
- **Annotated Student Response:** sample student response for each score point with annotations that explain the reasoning behind the assigned score

Item Information and Scoring Guide Reference Sheet

Constructed-Response Items

- **CR#:** the constructed-response item position in the Class Analysis Report
  Up to four points may be earned for a constructed-response item.

- **Calculator:** indication of whether a calculator was an allowed tool in the session during which the item was administered

- **Cluster:** the cluster that the item measured

- **Content Standard:** the content standard that the item measured

- **Grade Level Expectation (GLE):** the grade level expectation that the item measured

- **Constructed-Response Scoring Guide:** the description of each score point used to determine the score, including the percent of students statewide who received each score and the statewide average student score

- **Training Notes:** in-depth descriptions or particular information used to determine the score

- **Annotated Student Response:** sample student response for each score point with annotations that explain the reasoning behind the assigned score

MEA 2005–2006

Mathematics Grade 3

The table below shows the entire MEA mathematics test design. Half of the common items are released and can be found in this document. Item information for all item types, scoring information (average scores, guides, and training notes) for all short-answer and constructed-response items, and annotated student responses follow.

2005–2006 MEA MATHEMATICS TEST DESIGN

Content Area	Common			Embedded Field Test			Total Items per Student			Base Testing Time	Points
	MC	CR	SA	MC	CR	SA	MC	CR	SA		
Mathematics	32	1	6	8	1	2	40	2	8	90 min.	48

Each item on the MEA measures a grade level expectation based on Maine's *Learning Results*. Score points for items are accumulated and reported in clusters. Each content standard is included in a cluster as indicated below.

Mathematics Clusters

1. Numbers and Operations
- Numbers and Number Sense
- Computation
- Discrete Mathematics

2. Shape and Size
- Geometry
- Measurement

3. Mathematical Decision Making
- Data Analysis and Statistics
- Probability
- Mathematical Reasoning

4. Patterns
- Patterns, Relations, and Functions
- Algebra Concepts
- Mathematical Communication

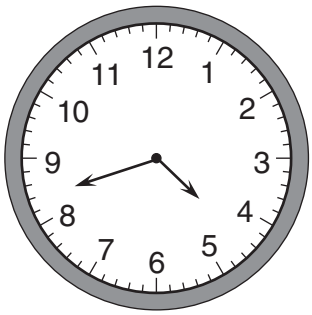
1. Which number is odd?

*68%	A.	215
13%	B.	376
11%	C.	598
6%	D.	646

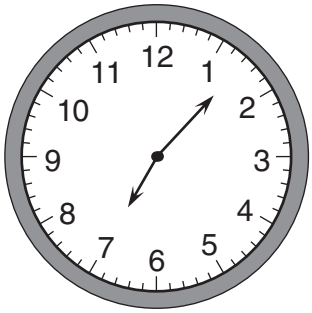
MC#: 1
Key: A
Calculator: Not Allowed
Cluster: Numbers and Operations
Content Standard A: Number and Number Sense- Students will understand and demonstrate a sense of what numbers mean and how they are used.
GLE: A1.3- Students will be able to compare whole numbers using <, >, and = and order numbers up to 1000 and classify numbers as odd and even for numbers up to 1000.

2. Melvin's bus comes at 8:22. Which clock shows this time?

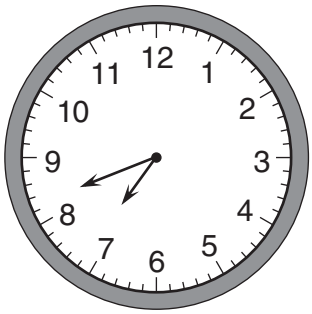
19% A.



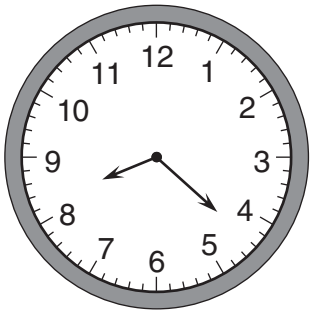
1% B.



2% C.



*77% D.



(Item information is on the following page.)

MC#: 2
Key: D
Calculator: Not Allowed
Cluster: Shape and Size
Content Standard F: Measurement- Students will understand and demonstrate measurement skills.
GLE: F1.3- Students will be able to solve and justify solutions to real-life problems involving the measurement of time, length, and temperature including using a ruler to measure length to the nearest inch and whole number.

3. Carlos has these coins.

How much money does Carlos have?

6% A. 37¢
5% B. 42¢
*84% C. 47¢
4% D. 52¢

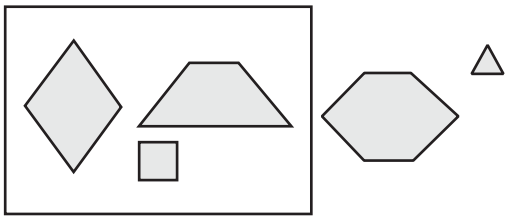
MC#: 3
Key: C
Calculator: Not Allowed
Cluster: Numbers and Operations
Content Standard B: Computation: Students will understand and demonstrate computation skills (no calculator use for straight computation; numbers used in this section should match those listed for Standard A).
GLE: B1.3- Students will be able to solve single and multi-step, real-life problems using addition and subtraction with whole numbers with no number greater than 1000.

4. Marty wants sports cards for each of his 29 favorite players. He has 17 cards. Which number sentence can be used to find how many more cards he needs?

27% A. $29 + 17 = \square$
*54% B. $29 - 17 = \square$
6% C. $29 \times 17 = \square$
9% D. $29 \div 17 = \square$

MC#: 4
Key: B
Calculator: Not Allowed
Cluster: Patterns
Content Standard H: Algebra Concepts- Students will understand and apply algebraic concepts.
GLE: H2.3- Students will be able to solve for a missing number or find the replacement for a symbol in addition and subtraction sentences using whole numbers.

5. Jody made up a rule to sort her blocks. The blocks shown in the box all follow the same rule.



What is the rule?

2% A. The blocks in the box are big.

2% B. The blocks in the box are squares.

*84% C. The blocks in the box have four sides.

10% D. The blocks in the box have right angles.

MC#: 5
Key: C
Calculator: Not Allowed
Cluster: Shape and Size
Content Standard E: Geometry: Students will understand and apply concepts from geometry.
GLE: E1.3- Students will be able to use properties/attributes limited to number of sides, number of angles, to identify, describe, and distinguish between triangles and rectangles and lengths of sides to identify squares as special rectangles.

6. Jamie went shopping. This list shows the order she went to the stores.

pet store

grocery store

shoe store

post office

dollar store

Which store was the THIRD one Jamie went to?

2%	A.	post office
*93%	B.	shoe store
3%	C.	dollar store
2%	D.	grocery store

MC#: 6
Key: B
Calculator: Not Allowed
Cluster: Numbers and Operations
Content Standard A: Number and Number Sense- Students will understand and demonstrate a sense of what numbers mean and how they are used.
GLE: A1.3- Students will be able to compare whole numbers using <, >, and = and order numbers up to 1000 and classify numbers as odd and even for numbers up to 1000.

7. Subtract:

$$\begin{array}{r} 723 \\ -\ 231 \\ \hline \end{array}$$

5%	A.	482
*62%	B.	492
25%	C.	512
6%	D.	592

MC#: 7
Key: B
Calculator: Not Allowed
Cluster: Numbers and Operations
Content Standard B: Computation: Students will understand and demonstrate computation skills (no calculator use for straight computation; numbers used in this section should match those listed for Standard A).
GLE: B1.3- Students will be able to solve single and multi-step, real-life problems using addition and subtraction with whole numbers with no number greater than 1000.

8. Darnell is stacking blocks to make a pattern.

Which is the missing stack of blocks?

12% A. 

8% B. 

4% C. 

*75% D. 

MC#: 8
Key: D
Calculator: Not Allowed
Cluster: Patterns
Content Standard G: Patterns, Relations, and Functions- Students will understand that mathematics is the science of patterns, relationships, and functions.
GLE: G1.3- Students will be able to determine the next term or missing terms in patterns in numbers or shapes.

9. The class library had 27 books. Then 3 people each gave 5 more books. How many books are there now?

40%	A.	32
5%	B.	35
3%	C.	37
*50%	D.	42

MC#: 9
Key: D
Calculator: Not Allowed
Cluster: Numbers and Operations
Content Standard B: Computation: Students will understand and demonstrate computation skills (no calculator use for straight computation; numbers used in this section should match those listed for Standard A).
GLE: B1.3- Students will be able to solve single and multi-step, real-life problems using addition and subtraction with whole numbers with no number greater than 1000.

10. Today is July 6. Kris is going to visit her grandmother in 11 days.

July						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

On what day of the week will Kris leave to visit her grandmother?

*80% A. Sunday
14% B. Monday
3% C. Wednesday
2% D. Friday

MC#: 10
Key: A
Calculator: Not Allowed
Cluster: Shape and Size
Content Standard F: Measurement- Students will understand and demonstrate measurement skills.
GLE: F1.3- Students will be able to solve and justify solutions to real-life problems involving the measurement of time, length, and temperature including using a ruler to measure length to the nearest inch and whole number.

11. There are 376 students in Ryan's school. Katie's school has 713 students. How many more students are in Katie's school than Ryan's school? Show or explain how you found your answer.

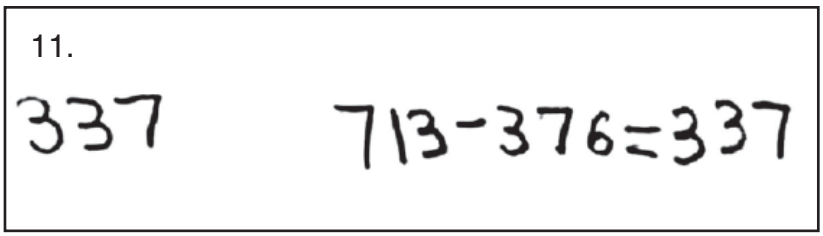
SA#: 11
Calculator: Not Allowed
Cluster: Numbers and Operations
Content Standard B: Computation: Students will understand and demonstrate computation skills (no calculator use for straight computation; numbers used in this section should match those listed for Standard A).
GLE: B1.3- Students will be able to solve single and multi-step, real-life problems using addition and subtraction with whole numbers with no number greater than 1000.

Percentage of Statewide Student Scores	Score	Description
31%	2	Student correctly answered, **337**, with work shown or explanation given
21%	1	Student gives correct answer, but no work or explanation is provided OR Student's answer is incorrect, but work or explanation shows correct strategy in solving the problem, but there is a computation error.
45%	0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured
3%	Blank	No response.
.83	Statewide average student score.	

Training Notes for Short-Answer Item 11

Sample Response
713 – 376 = 337

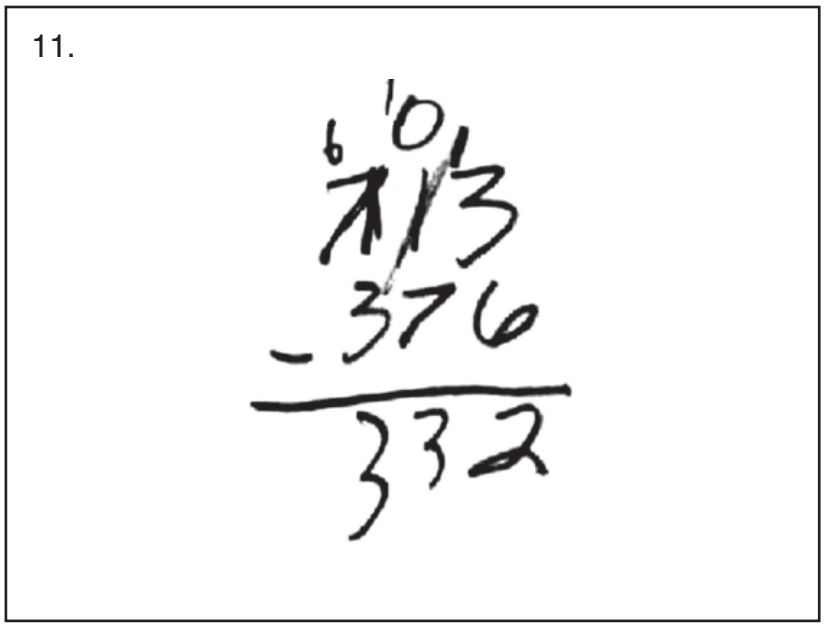
Sample 2-Point Response with Annotations for Short-Answer Item 11



Summary annotation statement:

The student identifies the correct answer of 337, and the correct work is shown.

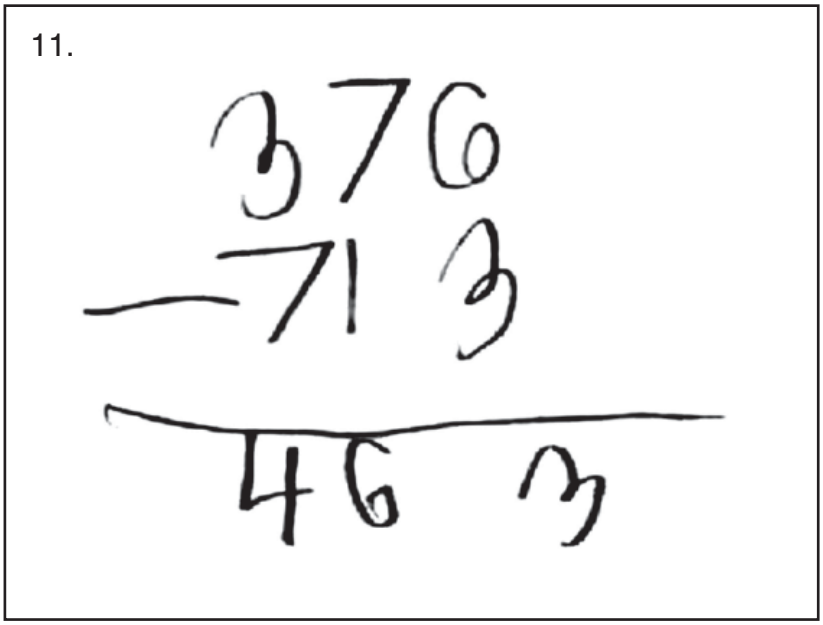
Sample 1-Point Response with Annotations for Short-Answer Item 11



Summary annotation statement:

The student's answer is incorrect, but the work shows a correct strategy.

Sample 0-Point Response with Annotations for Short-Answer Item 11

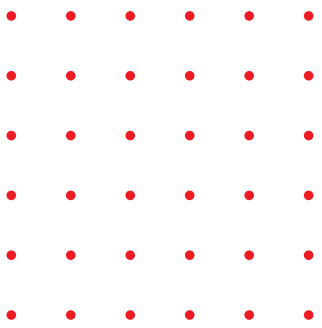


Summary annotation statement:

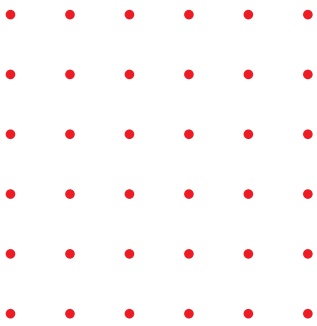
The student's answer and strategy are incorrect.

12a. Use the dot grid below to draw a figure that has

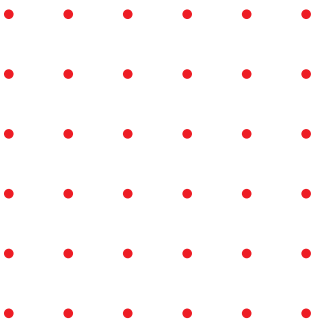
- 5 sides and
- 5 angles.



b. Use the dot grid below to draw a shape that is the same size and same shape as the figure you drew in part a.



c. Use the dot grid below to draw a figure that has a line of symmetry. Make a dotted line on the figure to show the line of symmetry.



(Item information is on the following page.)

CR#: 12
Calculator: Not Allowed
Cluster: Shape and Size
Content Standard E: Geometry- Students will understand and apply concepts from geometry.
GLE: E2.3- Students will be able to identify a line of symmetry for a given shape or answer questions about figures based on lines of symmetry, e.g. "which of the following shapes have one or more lines of symmetry?"

CONSTRUCTED-RESPONSE SCORING GUIDE

Percentage of Statewide Student Scores	Score	Description
30%	4	5 points
19%	3	4 points
33%	2	2 or 3 points
8%	1	1 point OR minimal understanding of attributes of shapes, congruency, and/or lines of symmetry
9%	0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
2%	Blank	No response.
2.49	Statewide average student score.	

Training Notes for Constructed-Response Item 12

Part a: 1 point — figure with 5 sides and 5 angles

Part b: 2 points — figure that is congruent to figure in part a
OR
1 point — figure that is same shape but different size

Part c: 2 points — figure with at least one line of symmetry and correctly shows a line of symmetry
OR
1 point — figure with at least one line of symmetry, but no line of symmetry is given or a line given is incorrect

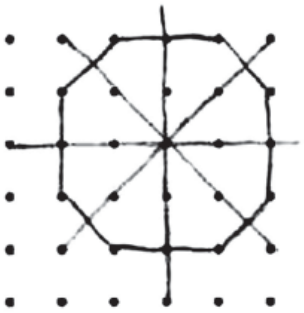
Sample 4-Point Response with Annotations for Constructed-Response Item 12

12a. Use the dot grid below to draw a figure that has

- 5 sides and
- 5 angles.

b. Use the dot grid below to draw a shape that is the same size and same shape as the figure you drew in part a.

c. Use the dot grid below to draw a figure that has a line of symmetry. Make a dotted line on the figure to show the line of symmetry.



Summary annotation statement:

In part a, the student receives 1 point for drawing a figure with 5 sides and 5 angles. He or she earns 2 points in part b for drawing a figure the same size and shape as the figure drawn in part a, and earns 2 points in part c for drawing a figure and correctly identifying the line(s) of symmetry.

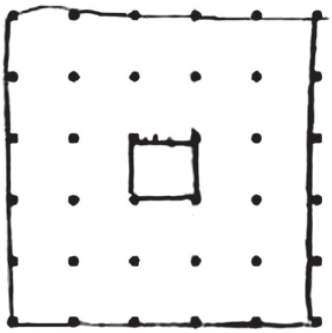
Sample 3-Point Response with Annotations for Constructed-Response Item 12

12a. Use the dot grid below to draw a figure that has

- 5 sides and
- 5 angles.

b. Use the dot grid below to draw a shape that is the same size and same shape as the figure you drew in part a.

c. Use the dot grid below to draw a figure that has a line of symmetry. Make a dotted line on the figure to show the line of symmetry.



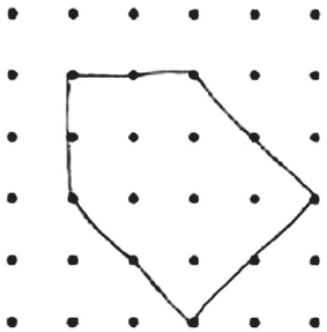
Summary annotation statement:

In part a, the student receives 1 point for drawing a figure with 5 sides and 5 angles. He or she earns 2 points for drawing a figure the same size and shape as the figure drawn in part a, and earns 1 point for drawing a figure in part c that has at least one line of symmetry; however, no line of symmetry is identified.

Sample 2-Point Response with Annotations for Constructed-Response Item 12

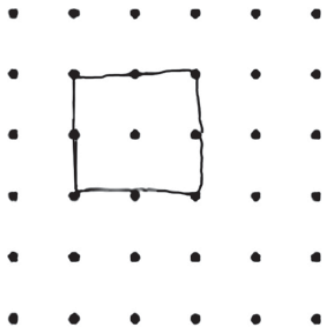
12a. Use the dot grid below to draw a figure that has

- 5 sides and
- 5 angles.



b. Use the dot grid below to draw a shape that is the same size and same shape as the figure you drew in part a.

c. Use the dot grid below to draw a figure that has a line of symmetry. Make a dotted line on the figure to show the line of symmetry.



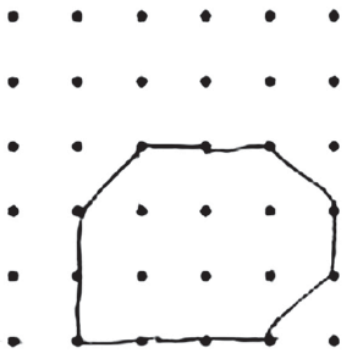
Summary annotation statement:

The student receives 1 point for drawing a figure in part a, with 5 sides and 5 angles. In part b he or she earns 1 point for drawing a figure that is the same shape but a different size than the figure in part a. The student earns 1 point for drawing a figure that has at least one line of symmetry; however, no line of symmetry is identified.

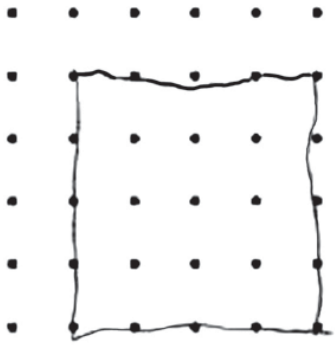
Sample 1-Point Response with Annotations for Constructed Response Item 12

12a. Use the dot grid below to draw a figure that has

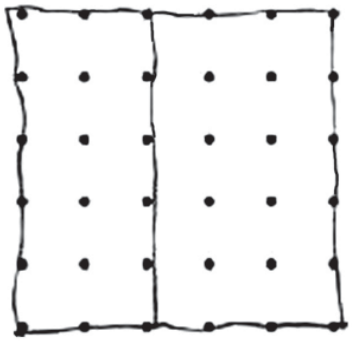
- 5 sides and
- 5 angles.



b. Use the dot grid below to draw a shape that is the same size and same shape as the figure you drew in part a.



c. Use the dot grid below to draw a figure that has a line of symmetry. Make a dotted line on the figure to show the line of symmetry.



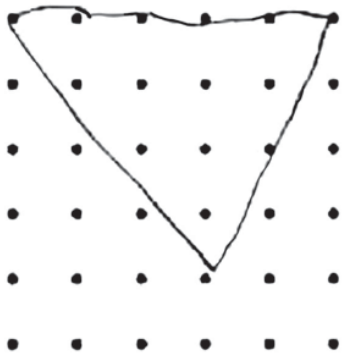
Summary annotation statement:

The student does not earn any points for drawing an incorrect figure in part a, and the figure in part b is not congruent to the figure drawn in part a. The student receives 1 point for a figure drawn that has at least one line of symmetry; however, the line of symmetry is incorrectly identified.

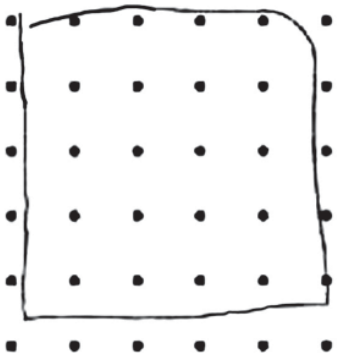
Sample 0-Point Response with Annotations for Constructed-Response Item 12

12a. Use the dot grid below to draw a figure that has

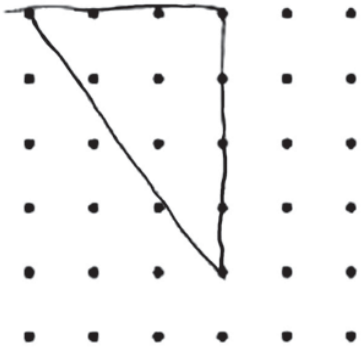
- 5 sides and
- 5 angles.



b. Use the dot grid below to draw a shape that is the same size and same shape as the figure you drew in part a.



c. Use the dot grid below to draw a figure that has a line of symmetry. Make a dotted line on the figure to show the line of symmetry.



Summary annotation statement:

The student does not draw a figure with 5 sides and 5 angles in part a, does not draw a figure in part b that is congruent to the figure in part a, and draws a figure with no lines of symmetry in part c.

13. Look at this pattern.

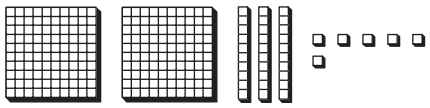
92 86 ? 74 68

What is the missing number?

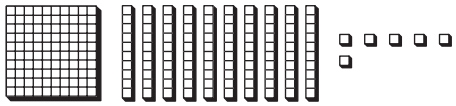
13% A. 75
*77% B. 80
6% C. 85
3% D. 92

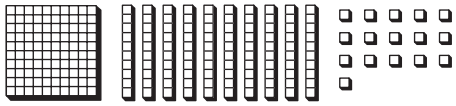
MC#: 13
Key: B
Calculator: Allowed
Cluster: Patterns
Content Standard G: Patterns, Relations, and Functions- Students will understand that mathematics is the science of patterns, relationships, and functions.
GLE: G1.3- Students will be able to determine the next term or missing terms in patterns with numbers or shapes.

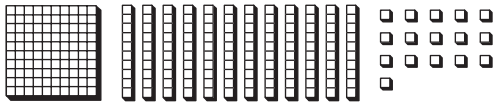
14. Sandy made a number using base-ten blocks.

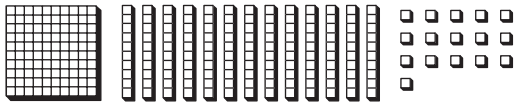


Which blocks show the same number?

31% A. 

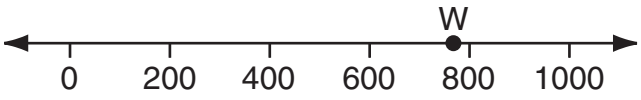
7% B. 

*48% C. 

12% D. 

MC#: 14
Key: C
Calculator: Allowed
Cluster: Numbers and Operations
Content Standard A: Number and Number Sense- Students will understand and demonstrate a sense of what numbers mean and how they are used.
GLE: A1.3- Students will be able to compare whole numbers using <, >, and = and order numbers up to 1000 and classify numbers as odd and even for numbers up to 1000.

15. Wendy marked her secret number with "W" on the number line.



Which number could be Wendy's?

9%	A.	691
*48%	B.	783
40%	C.	800
3%	D.	814

MC#: 15
Key: B
Calculator: Allowed
Cluster: Numbers and Operations
Content Standard A: Number and Number Sense- Students will understand and demonstrate a sense of what numbers mean and how they are used.
GLE: A1.3- Students will be able to compare whole numbers using <, >, and = and order numbers up to 1000 and classify numbers as odd and even for numbers up to 1000.

16. Marco cut a piece of wood that is 1 foot 8 inches long. How many inches long is Marco's piece of wood?
(1 foot = 12 inches)

12% A. 14 inches
6% B. 16 inches
10% C. 18 inches
*70% D. 20 inches

MC#: 16
Key: D
Calculator: Allowed
Cluster: Shape and Size
Content Standard F: Measurement- Students will understand and demonstrate measurement skills.
GLE: F1.3- Students will be able to solve and justify solutions to real-life problems involving the measurement of time, length, and temperature including using a ruler to measure length to the nearest inch and whole number.

17. Gerald is solving this problem.

13 + 9 + ☐ = 27

What number belongs in the box?

*82% A. 5
5% B. 6
4% C. 14
7% D. 22

MC#: 17
Key: A
Calculator: Allowed
Cluster: Patterns
Content Standard H: Algebra Concepts- Students will understand and apply algebraic concepts.
GLE: H2.3- Students will be able to solve for a missing number or find the replacement for a symbol in addition and subtraction sentences using whole numbers.

18. Harry has to fill in the missing numbers in the pattern below.

12 25 38 51 ____ ____

Which number goes in the LAST blank?

*60%	A.	77
11%	B.	72
8%	C.	67
16%	D.	64

MC#: 18
Key: A
Calculator: Allowed
Cluster: Patterns
Content Standard G: Patterns, Relations, and Functions- Students will understand that mathematics is the science of patterns, relationships, and functions.
GLE: G1.3- Students will be able to determine the next term or missing terms in patterns with numbers or shapes.

19. The 24 students in Mr. Peret's class voted for their favorite book. Cassie is making the tally chart below to show the votes.

Favorite Book

The Man Who Walked Between the Towers	𝍸
My Friend Rabbit	𝍸 |||
The Three Pigs	|||
So You Want to be President?	

The rest of the votes were for *So You Want to be President?*

a. Complete the tally chart.

b. How many more votes did *My Friend Rabbit* receive than *The Three Pigs*?

SA#: 19
Calculator: Allowed
Cluster: Mathematical Decision Making
Content Standard C: Data Analysis and Statistics
GLE: C2.3- Students will be able to read and interpret displays of data: line plots, tables, tally charts, and bar graphs, identifying least frequent, most frequent (mode*), reading, using and comparing values.
*not responsible for this vocabulary

Percentage of Statewide Student Scores	Score	Description
38%	2	2 points
40%	1	1 point
20%	0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
2%	Blank	No response.
1.16	Statewide average student score.	

Training Notes for Short-Answer Item 19

Part a: 1 point correctly completes tally chart with 9 tallies
Part b: 1 point correct answer (5)

19. The 24 students in Mr. Peret's class voted for their favorite book. Cassie is making the tally chart below to show the votes.

Favorite Book

The Man Who Walked Between the Towers	𝍸
My Friend Rabbit	𝍸 |||
The Three Pigs	|||
So You Want to be President?	𝍸 ||||

The rest of the votes were for *So You Want to be President?*

a. Complete the tally chart. 𝍸 ||||

b. How many more votes did *My Friend Rabbit* receive than *The Three Pigs*?

Rabbit 8 − Pigs 3 = 5

Summary annotation statement:

The student receives 1 point for the correct completion of a tally chart with 9 tallies in part a, and 1 point for the correct answer of 5 in part b.

19. The 24 students in Mr. Peret's class voted for their favorite book. Cassie is making the tally chart below to show the votes.

Favorite Book

The Man Who Walked Between the Towers	𝍸
My Friend Rabbit	𝍸 |||
The Three Pigs	|||
So You Want to be President?	𝍸 𝍸

The rest of the votes were for *So You Want to be President?*

a. Complete the tally chart.

b. How many more votes did *My Friend Rabbit* receive than *The Three Pigs*?

five

Summary annotation statement:

The student receives 1 point for the correct answer in part b, but shows an incorrect tally chart with 10 tallies in part a.

19. The 24 students in Mr. Peret's class voted for their favorite book. Cassie is making the tally chart below to show the votes.

Favorite Book

The Man Who Walked Between the Towers	𝍸
My Friend Rabbit	𝍸 𝍸 |||
The Three Pigs	|||
So You Want to be President?	𝍸

The rest of the votes were for *So You Want to be President?*

a. Complete the tally chart. 5

b. How many more votes did *My Friend Rabbit* receive than *The Three Pigs*?

8

Summary annotation statement:

The answers in both parts a and b are incorrect.

20. Megan sold 65 cards. Paula sold 82 cards.

Write a number sentence that can be used to find how many more cards Paula sold than Megan. Be sure to solve your number sentence.

SA#: 20
Calculator: Allowed
Cluster: Patterns
Content Standard G: Patterns, Relations, and Functions- Students will understand that mathematics is the science of patterns, relationships, and functions.
GLE: G2.3- Students will be able to translate real-life situations into addition and subtraction sentences.

SHORT-ANSWER SCORING GUIDE

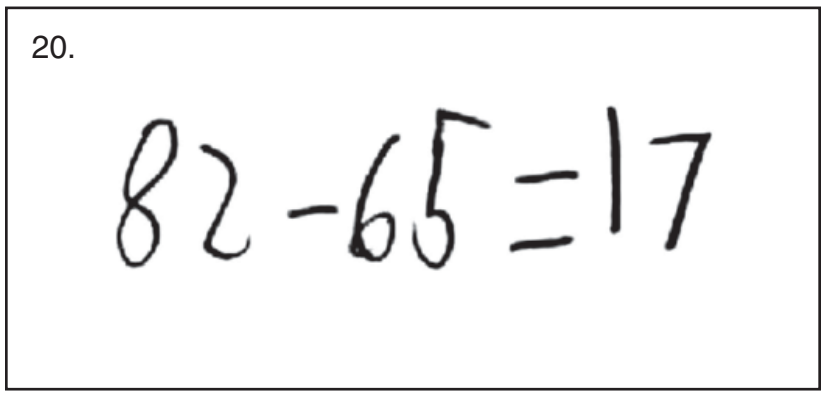
Percentage of Statewide Student Scores	Score	Description
26%	2	2 points
45%	1	1 point
26%	0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
3%	Blank	No response.
.97	Statewide average student score.	

Training Notes for Short-Answer Item 20

Part a: 1 point correct number sentence (e.g., 82 – 65= ☐, 82 – 65 = 17, or 65 + ☐ = 82)

Part b: 1 point correct answer to number sentence given

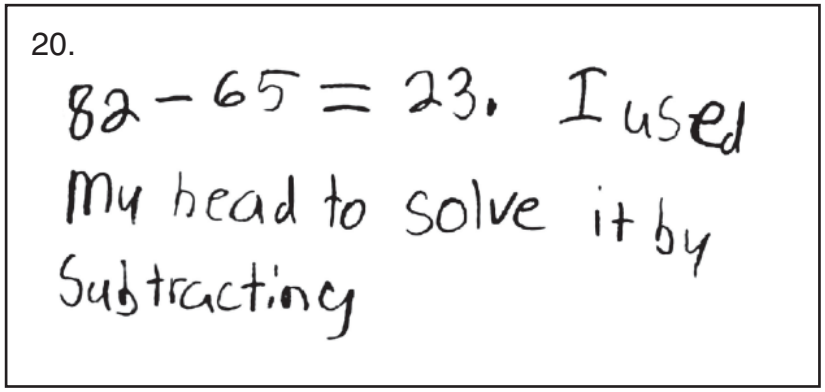
Sample 2-Point Response with Annotations for Short-Answer Item 20



Summary annotation statement:

The student receives 1 point for the correct number sentence, and 1 point for the correct answer, 17, found within the number sentence.

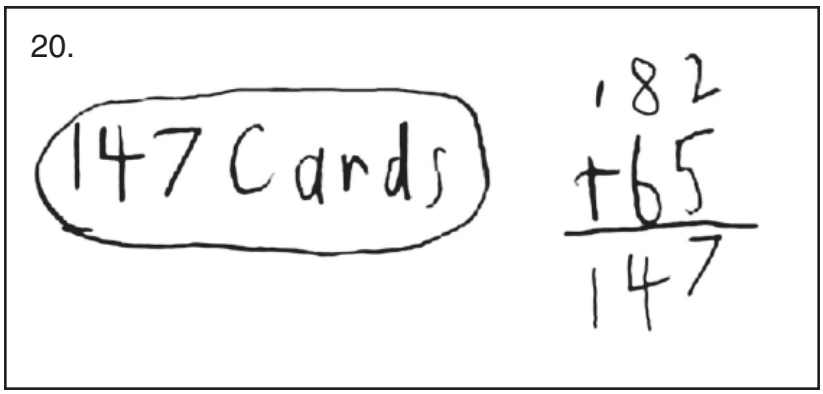
Sample 1-Point Response with Annotations for Short-Answer Item 20



Summary annotation statement:

The student gives the correct number sentence, but calculates an incorrect answer.

Sample 0-Point Response with Annotations for Short-Answer Item 20



Summary annotation statement:

Student gives the incorrect number sentence and answer; the work shown is correct addition, but is irrelevant to the concept being measured.